SEVERN TRENT STL Leaders in Environmental Testing

Certificate of Analysis

STL Austin • 14050 Summit Drive, Suite A100, Austin, TX 78728 • Tel 512 244 0855 • Fax 512 244 0160 • www.stl-inc.com

ANALYTICAL REPORT

Trace Analysis

Lot #: I6K290174

Nell Green

Trace Analysis
6701 Aberdeen Ave., Ste 9
Lubbock, TX 79424

SEVERN TRENT LABORATORIES, INC.

Neal J. Salcher
Project Manager

December 8, 2006

American Council of Independent Laboratories
International Association of Environmental Testing Laboratories

Case Narrative

STL LOT NUMBER: **I6K290174**

This report contains the analytical results for the seven samples received under chain of custody by Severn Trent Laboratories (STL) on November 29, 2006. These samples are associated with your Trace Analysis project.

All samples were received in good condition and within temperature requirements.

All applicable quality control procedures met method-specified acceptance criteria except where noted in the case narrative or flagged on the result pages.

If you have any questions, please feel free to call me at 512-310-5215.

EXECUTIVE SUMMARY - Detection Highlights

I6K290174

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
NO DETECTABLE PARAMETERS				

ANALYTICAL METHODS SUMMARY

I6K290174

PARAMETER	ANALYTICAL METHOD
Nonhalogenated Organics Using GC/FID	SW846 8015B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

I6K290174

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
JKGMT	001	109675	11/17/06	
JKGMX	002	109677	11/17/06	
JKGM0	003	109678	11/17/06	
JKGM2	004	109681	11/17/06	
JKGM3	005	109682	11/17/06	
JKGM4	006	109685	11/17/06	
JKGM6	007	109686	11/17/06	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

I6K290174

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO	SW846 8015B		6335256	6342082
002	SO	SW846 8015B		6335256	6342082
003	SO	SW846 8015B		6335256	6342082
004	SO	SW846 8015B		6335256	6342082
005	SO	SW846 8015B		6335256	6342082
006	SO	SW846 8015B		6335256	6342082
007	SO	SW846 8015B		6335256	6342082

Trace Analysis Inc

Client Sample ID: 109675

GC Semivolatiles

Lot-Sample #...:	I6K290174-001	Work Order #...:	JKGMT1AA	Matrix.....:	SO
Date Sampled...:	11/17/06	Date Received..:	11/29/06	MS Run #.....:	6342082
Prep Date.....:	12/01/06	Analysis Date..:	12/01/06		
Prep Batch #...:	6335256	Analysis Time..:	19:42		
Dilution Factor:	1				
% Moisture.....:		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	100	(50 - 142)

Trace Analysis Inc

Client Sample ID: 109677

GC Semivolatiles

Lot-Sample #...: I6K290174-002	Work Order #...: JKGMX1AA	Matrix.....: SO
Date Sampled...: 11/17/06	Date Received..: 11/29/06	MS Run #.....: 6342082
Prep Date.....: 12/01/06	Analysis Date..: 12/01/06	
Prep Batch #...: 6335256	Analysis Time..: 20:12	
Dilution Factor: 1		
% Moisture.....:	Method.....: SW846 8015B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	94	(50 - 142)

Trace Analysis Inc

Client Sample ID: 109678

GC Semivolatiles

Lot-Sample #...:	I6K290174-003	Work Order #...:	JKGM01AA	Matrix.....:	SO
Date Sampled...:	11/17/06	Date Received..:	11/29/06	MS Run #.....:	6342082
Prep Date.....:	12/01/06	Analysis Date..:	12/01/06		
Prep Batch #...:	6335256	Analysis Time..:	20:41		
Dilution Factor:	1				
% Moisture.....:		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	88	(50 - 142)

Trace Analysis Inc

Client Sample ID: 109681

GC Semivolatiles

Lot-Sample #...: I6K290174-004	Work Order #...: JKGM21AA	Matrix.....: SO
Date Sampled...: 11/17/06	Date Received..: 11/29/06	MS Run #.....: 6342082
Prep Date.....: 12/01/06	Analysis Date..: 12/01/06	
Prep Batch #...: 6335256	Analysis Time..: 21:11	
Dilution Factor: 1		
% Moisture.....:	Method.....: SW846 8015B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	81	(50 - 142)

Trace Analysis Inc

Client Sample ID: 109682

GC Semivolatiles

Lot-Sample #...:	I6K290174-005	Work Order #...:	JKGM31AA	Matrix.....:	SO
Date Sampled...:	11/17/06	Date Received..:	11/29/06	MS Run #.....:	6342082
Prep Date.....:	12/01/06	Analysis Date..:	12/01/06		
Prep Batch #...:	6335256	Analysis Time..:	21:41		
Dilution Factor:	1				
% Moisture.....:		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	95	(50 - 142)

Trace Analysis Inc

Client Sample ID: 109685

GC Semivolatiles

Lot-Sample #...:	I6K290174-006	Work Order #...:	JKGM41AA	Matrix.....:	SO
Date Sampled...:	11/17/06	Date Received..:	11/29/06	MS Run #.....:	6342082
Prep Date.....:	12/01/06	Analysis Date..:	12/01/06		
Prep Batch #...:	6335256	Analysis Time..:	22:10		
Dilution Factor:	1				
% Moisture.....:		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	85	(50 - 142)

Trace Analysis Inc

Client Sample ID: 109686

GC Semivolatiles

Lot-Sample #...: I6K290174-007	Work Order #...: JKGM61AA	Matrix.....: SO	
Date Sampled...: 11/17/06	Date Received..: 11/29/06	MS Run #.....: 6342082	
Prep Date.....: 12/01/06	Analysis Date..: 12/01/06		
Prep Batch #...: 6335256	Analysis Time..: 22:40		
Dilution Factor: 1			
% Moisture.....:	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Ethylene glycol	ND	25	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	81	(50 - 142)

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: I6K290174
MB Lot-Sample #: I6L010000-256
Work Order #...: JKMD51AA
Matrix.....: SOLID
Prep Date.....: 12/01/06
Analysis Time..: 19:12
Analysis Date..: 12/01/06
Prep Batch #...: 6335256
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Ethylene glycol	ND	25	mg/kg	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	82	(50 - 142)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: I6K290174 Work Order #...: JKMD51AC Matrix.....: SOLID
LCS Lot-Sample#: I6L010000-256
Prep Date.....: 12/01/06 Analysis Date..: 12/01/06
Prep Batch #...: 6335256 Analysis Time..: 16:44
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Ethylene glycol	104	(85 - 115)	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	87	(75 - 126)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: I6K290174 Work Order #...: JKMD51AC Matrix.....: SOLID
LCS Lot-Sample#: I6L010000-256
Prep Date.....: 12/01/06 Analysis Date..: 12/01/06
Prep Batch #...: 6335256 Analysis Time..: 16:44
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Ethylene glycol	400	414	mg/kg	104	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	87	(75 - 126)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: I6K290174 Work Order #...: JKGMT1AC-MS Matrix.....: SO
MS Lot-Sample #: I6K290174-001 JKGMT1AD-MSD
Date Sampled...: 11/17/06 Date Received..: 11/29/06 MS Run #.....: 6342082
Prep Date.....: 12/01/06 Analysis Date..: 12/01/06
Prep Batch #...: 6335256 Analysis Time..: 17:14
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Ethylene glycol	95	(85 - 115)			SW846 8015B
	97	(85 - 115)	2.4	(0-30)	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	95	(50 - 142)
	92	(50 - 142)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...:	I6K290174	Work Order #...:	JKGMT1AC-MS	Matrix.....:	SO
MS Lot-Sample #:	I6K290174-001		JKGMT1AD-MSD		
Date Sampled...:	11/17/06	Date Received..:	11/29/06	MS Run #.....:	6342082
Prep Date.....:	12/01/06	Analysis Date..:	12/01/06		
Prep Batch #...:	6335256	Analysis Time..:	17:14		
Dilution Factor:	1				

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Ethylene glycol	ND	400	379	mg/kg	95		SW846 8015B
	ND	400	388	mg/kg	97	2.4	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
n-Butanol	95	(50 - 142)
	92	(50 - 142)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Report Attachment

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of the NELAC standards. All data have been found to be compliant with laboratory protocol except as otherwise noted.

Note that if this report contains tests performed for the following methods, the associated method deviations are applicable.

EPA 410.4, COD: Laboratory uses different analytical wavelength as specified by instrument manufacturer.
EPA 340.2, Fluoride: Preliminary Bellack distillation not performed.
EPA 624: The laboratory uses a different desorb time and purge volume than stated in the method.
EPA 8151A: Laboratory utilizes alternate extraction solvent.
Iowa OA1: Benzene, toluene, ethylbenzene and xylenes (BTEX) are not analyzed along with the Gasoline Range Organics if client does not require BTEX.
EPA TO-12: Samples not analyzed in duplicate.
EPA TO-14A and TO-15: Zero humidified nitrogen is used in place of air for method blanks.

TRRP Reporting Requirements

If this package contains reports requiring TRRP (Texas Risk Reduction Program) reporting criteria, the following information applies.

The REPORTING LIMIT is equivalent to the TRRP acronym MQL (method quantitation limit).
The MDL is equivalent to the TRRP acronym SQL (sample quantitation limit).

SEVERN TRENT STL

CHAIN-OF-CUSTODY ADDENDUM

Lot No: F6K290174

RECEIVED BY: CF

DATE/TIME RECEIVED: 11-29-06 0900

UNPACKED DATE/TIME: 11-29-06 1000

CLIENT/PROJECT: Trace Analysis

Number of Shipping Containers Received with Chain of Custody

COC NUMBER:

QUOTE/PROFILE: 61969

SAMPLES LOGGED IN: CC

LOG-IN REVIEWED:

VOC AIR / FILTER SAMPLES ☐ YES SEE SECTIONS 1.0, 2.0, & 6.0

1.0 CONTAINERS EXAMINED UPON RECEIPT: CC

Container Sealed: ☑ YES ☐ NO

Custody Seal Present: ☐ YES ☐ NO

Custody Seal Signed/Dated: ☐ YES ☐ NO

Containers checked for radioactivity: ☐ YES ☐ NO ☑ N/A

If seal not intact or Geiger counter reading >0.5 mR/hr, list air bill number of that container(s):

2.0 VOC CANISTERS EXAMINED UPON RECEIPT:

Canister Valves Closed: ☐ YES ☐ NO

Canister Valves Capped: ☐ YES ☐ NO

Valve Cap Tightened Properly: ☐ YES ☐ NO

Packing Material Used: (circle)

None / Absorbent / Paper / Bubble Wrap

Samples Received Match Chain: ☐ YES ☐ NO

Other Equipment Received: ☐ YES ☐ NO

See Additional Comments (Section 5.0 and / or 7.0) ☐ YES ☐ NO

Chain-of-Custody form properly maintained: ☐ YES ☐ NO

Can Size: ☐ 6L ☐ 15L Other

3.0 SAMPLE TEMPERATURE UPON RECEIPT BY: CC IR THERMOMETER #: 84

Temperature of the container(s):

Circle selection: TB = Temp. Blank and/or SC = Sample Container *[acceptable tolerance 4°C ± 2°; (NC, WT: 1-4.4°C)]*

TB 3.4	TB SC	TB SC	TB SC	TB SC	TB SC	TB SC	TB SC	TB SC	TB SC

If temperature is outside acceptable tolerance, Project Manager was notified (____PM). Date: Time:

Samples received do not require cooling

OK to analyze samples: ☑ YES ☐ NO

PRESERVATION OF SAMPLES REQUIRED: ☑ NA ☐ YES ☐ VOA Samples VERIFIED BY:

NOTE: pH CHECK OF VOLATILE SAMPLES PERFORMED AFTER ANALYSIS BY THE BENCH ANALYST.

Base samples are>pH 12: ☐ YES ☐ NO

Acid preserved are<pH 2: ☐ YES ☐ NO

Cyanide samples checked for sulfides: ☐ YES

Sulfide samples appear to be preserved with zinc acetate: ☐ YES ☐ NO

Samples checked for chlorine per specification (N.C.) ☐ YES

Free chlorine present: ☐ YES ☐ NO

If sample preservation is outside acceptable tolerance, Project Manager was notified (____PM)

Date: Time: ☐ see pH adjustment form

VOLATILE SAMPLES FILLED COMPLETELY, IF NOT, LIST ID AND HEADSPACE OF VOA's CONTAINING BUBBLES EXCEEDING 6MM IN DIAMETER:

Sample ID	mm Headspace

Sample ID	mm Headspace

4.0 CONDITION OF BOTTLES/CONTAINERS VERIFIED BY: _____

Samples received match COC: ☐ YES ☐ NO
Bottles received intact: ☐ YES ☐ NO
See additional discrepancies/comments section: ☐ YES ☐ NO
Samples received from USDA restricted area: ☐ YES ☐ NO
Chain-of-Custody form properly maintained: ☐ YES ☐ NO
VOA trip blanks included: ☐ YES ☐ NO ☐ N/A

5.0 ADDITIONAL DISCREPANCIES

Appears on COC		Appears on Label		
Sample ID	Date/Time	Sample ID	Date/Time	Comments

6.0 SHIPPING DOCUMENTATION:

Air/freight bill is available and attached to COC: ☐ YES ☐ NO Air bill #: _____

Hand-delivered Carrier: _____ Date: _____ Time: _____

7.0 OTHER COMMENTS:

CORRECTIVE ACTION:

Client's Name: _____ Informed verbally on: _____ By: _____

Client's Name: _____ Informed verbally on: _____ By: _____

Sample(s) processed "as is" comments: _____

Samples(s) on hold until: _____ If released, notify: _____

REVIEW:

Project Management: _____ Date: 12/5/06

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

E6K290174 LAB Order ID #_____ Page_____ of _____

TraceAnalysis, Inc.

email: lab@traceanalysis.com

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Lubbock, Texas 79424
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Fax (915) 585-4944
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6015 Harris Pkwy., Suite 110
Ft. Worth, Texas 76132
Tel (817) 201-5260

Company Name: Phone #:

Address: (Street, City, Zip) Fax #:

Contact Person: Nell Green E-mail:

Invoice to:
(If different from above)

Project #: Project Name:

Project Location (including state): Sampler Signature:

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME
	109675	1												11-17-06	
	109677	1													
	109678	1													
	109681	1													
	109682	1													
	109485	1													
	109686	1													

MTBE 8021B / 602 / 8260B / 624	BTEX 8021B / 602 / 8260B / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270C / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C / 625	PCB's 8082 / 608	Pesticides 8081A / 608	BOD, TSS, pH	Moisture Content	Ethylene Glycol					Turn Around Time if different from standard	Hold
																X	X						
																X	X						
																X	X						
																X	X						
																X	X						
																X	X						
																X	X						
																X							

Relinquished by: Date: Time: Received by: Date: Time:
Nicki Kinsley 11-28-06 11-29-06 0900

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received at Laboratory by: Date: Time:

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

LAB USE ONLY

Intact Y / N
Headspace Y / N
Temp °
Log-in-Review

REMARKS:

- ☐ Dry Weight Basis Required
- ☐ TRRP Report Required
- ☐ Check If Special Reporting Limits Are Needed

Carrier # _____

22/22